modes. There may be, for example, 1, 3, or 5 pair of grooves. The grooves extend toward the center of segment 250 but opposed grooves do not meet.

What is claimed is:

CLAIMS

1. A diode laser comprising:

a. a plurality of semiconductor layers including a top layer, a bottom layer, and an intermediate emission layer, the top layer including a ridge formed on a top surface thereof and extending to a first edge of the top layer, the layers each having a refractive index associated therewith, the refractive index of the emission layer differing from the refractive indices of the top and bottom layers;

b. a dopant region associated with the ridge and conforming in shape thereto;

c. means facilitating application of an electric field through the layers, the electric field altering the refractive indices of the layers, the degree of alteration differing within a confinement region defined by the ridge, radiation generated within the emission layer being optically confined within the confinement region and emitted from a first edge of the emission layer;

wherein

d. the ridge comprises an elongated segment and a flared segment extending to the first edge, the flared segment comprising at least two opposed grooves in a surface thereof, the grooves suppressing multimode radiation.

2. The diode laser of claim 1 wherein the ridge contains a dopant material, and further comprising a dopant material on an exposed surface of the bottom layer in a pattern identical in shape to the ridge.

3. The diode laser of claim 1 wherein the means facilitating application of an electric field is a pair of metal contacts on the top and bottom layers.

4. The diode laser of claim 1 wherein the ridge acts as a waveguide and the elongated segment has a width that permits only a single mode of light to propagate therethrough.

5. The diode laser of claim 1 wherein the flared segment has a pair of opposed side edges, the grooves extending from each side edge in a direction perpendicular to the edge.

6. The diode laser of claim 1 wherein the flared segment comprises a single pair of grooves.

7. The diode laser of claim 1 wherein the flared segment comprises three pairs of grooves.

8. The diode laser of claim 1 wherein the flared segment comprises five pairs of grooves.